Name:

5-a-day ACT prep #15

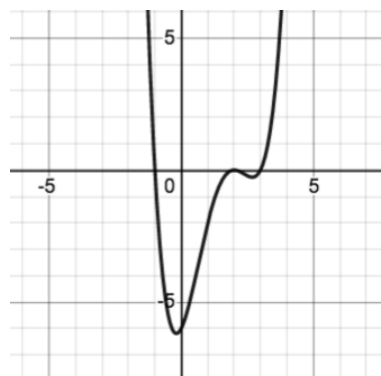Solve each problem, show your work, and then choose the correct answer.

Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left for this test.

You are permitted to use a calculator on this test. You may use your calculator for any problems you choose, but some of the problems may best be done without using a calculator.

Note: Unless otherwise stated, all of the following should be assumed.

1. Illustrative figures are NOT necessarily drawn to scale.
2. Geometric figures lie in a plane.
3. The word *line* indicates a straight line.
4. The word *average* indicates arithmetic mean.

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1. The graph of the polynomial functions shown below is tangent to the x-axis at the point $(2, 0)$. What must be true about the degree of the function?

A. The degree < 3
B. The degree ≤ 3
C. The degree > 4
D. The degree ≥ 4
E. None of these

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2. Which of the following expressions is equivalent to $\frac{5x^2-3x-2}{4x^2+4x-3} \div \frac{5x^2-13x-6}{2x^2+13x+15}$?

F. $\frac{35}{33}$

G. $\frac{(5x^2-3x-2)(5x^2+6)}{(4x^2+4x-3)(2x^2+15)}$

H. $\frac{x+5}{2(x-3)}$

I. $\frac{x^2+4x-5}{2x^2-7x+3}$

J. None of these

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3. What is the sum of the two solutions to the equation $4x^2 - 9 = 5x$?

A. 0
B. $\frac{5}{4}$
C. 3
D. $\frac{7}{2}$
E. None of these

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4. Which of the following is equivalent to $2x\sqrt{20} + 3\sqrt{45x^2} + x\sqrt{180}$?

A. $19x\sqrt{5}$
B. $6x\sqrt{245}$
C. $3x\sqrt{200} + 3\sqrt{45x^2}$
D. $3 + 3x\sqrt{200 + 45x^2}$
E. None of these

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5. Which of the following expressions is equivalent to $\left(\frac{1}{4}\right)^{2x} = 32^{4x-2}$?

A. -2
B. $\frac{5}{12}$
C. $\frac{11}{12}$
D. 7
E. None of these